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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,701	05/08/2001	Hugues Hoppe	MS1-732US	3521

22801	7590	02/18/2004

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EXAMINER
SAJOUS, WESNER

ART UNIT	PAPER NUMBER
2676	

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)	
Office Action Summary	09/851,701	HOPPE ET AL.	
	Examiner	Art Unit	
	Wesner Sajous	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

> A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
> THE MAILING DATE OF THIS COMMUNICATION.
> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
>   after SIX (6) MONTHS from the mailing date of this communication.
> - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
> - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
> - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
> - Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
>   earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *19 December 2003* .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-74* is/are pending in the application.

　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) *5, 10, 14, 19, 44, 62, 66, 70, and 72* is/are allowed.

6) ☒ Claim(s) *1-4, 6-9, 11-13, 15-18, 20, 43, 45-47, 53-61, 63, 64, 67-69, 71 and 73* is/are rejected.

7) ☒ Claim(s) *21-42, 48-52 and 74* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

　If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　a) ☐ All b) ☐ Some * c) ☐ None of:

　　1. ☐ Certified copies of the priority documents have been received.

　　2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
　　　application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

　a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Remark

1.   This Office Action is in response to the response dated December 19, 2003.

Claims 1-74 are presented for examination.

Response to Arguments

1.   Applicant's arguments with respect to claims 1-74 have been considered but are

moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4.   Claims 1-4, 6-9, 11-13, 15-18, 20, 43, 45-47, 53-61, 63-64, 67-69, and 71, and

73 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoppe (a microsoft

research paper).

Considering claim 1, Hoppe discloses a method comprising rendering a polygon

mesh to produce a computer-generated image, image exhibiting aliasing at its

discontinuity edges (interpreted as the creation of polygonal meshes with discontinuities

at its edge or with discontinuity in the visual appearance of the mesh. See section 2 in

Hoppe). In addition, Hoppe discloses the functional equivalent for overdrawing the

discontinuity edges as antialiased lines to reduce the aliasing (e.g., applying

"geomorphs" to avoid visual discontinuities, and/or to further refined the polygonal

mesh. See sections 3.2 and 3.3, paragraphs 1 and section 3.5).

Re claim 2, Hoppe discloses polygon mesh comprises a set of triangles (see fig.

1).

As per claim 3, the claimed "image is stored in memory after rendering, and the

overdrawing comprises rendering the discontinuity edges as antialiased lines in the

memory... edges" is intrinsically performed in the disclosure of Hoppe. See abstract.

In claim 4, the claimed "identifying the discontinuity edges as a collection of

silhouettes and sharp edges" is inherently disclosed in Hoppe disclosure at section 3.2.

As per claims 6, 7 and 9, the claimed "shading discontinuity edges and blending

selected discontinuity edges; and asymmetrically blending selected discontinuity edges"

is inherently performed by the system of Hoppe at sections 2, 3.2, and 3.3.

Re claim 8, the claimed "orienting the discontinuity edges in a consistent manner"

is intrinsic to the disclosure provided at paragraphs 4-5 of section 3.2, and section 3.5.

Claim 11 is a computer-readable media comprising computer-executable

instructions performing the method of claim 1, and is similarly rejected. See col. 1, lines

4-6.

The invention of claim 12 recites features equivalent to and performing the

method of claim 1, it is, therefore similarly rejected.

Claim 13 recites the features of claim 4, it is similarly rejected.

Claims 15-18, and 20 recites the cited features of claims 6-9, and 11, they are,

therefore rejected under the same rationale as claims 6-9, and 11, respectively.

Claim 43 recites features that are analogous the limitations of claim 1, it is

rejected under the same rationale as claim 1.

Claim 45 is rejected for the same reason as claim 6.

Claim 46 is rejected for reason similar to claim 10.

Claim 47 is rejected for reason similar to claim 43.

Claims 53 and 56-57 contain features that are substantially analogous to the

limitations recited in claim 1; they are, therefore, rejected under the same rationale as

claim 1. Note that since the system of Hoppe is computer implemented and pertaining

to graphics processing (see abstract), a processing unit, a graphics processor and a

frame buffer memory must be included to perform the underlying functions.

Claim 54 is rejected for the same reason as claim 2.

Claim 55 is rejected for the same reasons as claim 4.

Claims 58-61 recite the features of claims 6-9, respectively, they are, therefore,

rejected for the same reasons as claims 6-9.

Considering claims 63-64, it is noted because the features of claim 63 are

analogous to the limitations of claim 1, the limitations of claims 63-64 are rejected under

the same rationale as claim 1. Note that since a graphics processing system is

implemented in Hoppe, a data structure must be contemplated.

Re claim 65, the claimed "identifying sharp edges ... prior to rendering the polygon mesh" is inherent in Hoppe's disclosure, because in order to increase the accuracy of the LOD, sharp edges of the mesh must be identified prior to rendering the mesh.

Claim 67 contains features that are analogous to the limitations of combined claims 6 and 9, it is rejected under the same rationale as claims 6 and 9.

Claim 68 is rejected for reason similar to claim 47.

Claim 69 is a computer-readable media with program instructions performing the method of claim 63, it is, therefore, rejected under the same rationale as claim 63.

Claim 71 is rejected for reason similar to claim 6.

Claim 73 is a computer-readable media with computer-executable instructions performing the combined methods of claims 7 and 8.

Allowable Subject Matter

7.   Claims 5, 10, 14, 19, 44, 62, 66, 70, and 72 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, because the prior art fail to suggest shading comprises applying blending processes that balance temporal smoothness, and spatial sharpness.

Claims 21-42, 48-52, and 74 are allowed over the prior art because the prior art of record fails to particularly teach constructing a data structure prior to rendering a polygon mesh; finding (or identifying) silhouette (and/or sharp) edges in the polygon

mesh during runtime using the data structure; and omitting concave silhouette edges in

the polygon mesh during runtime from the data structure; and collecting the sharp

edges and the silhouette edges in the list to form discontinuity edges of the polygon

mesh (as recited in claims 21 and 28). The prior art of record fails to teach sorting the

discontinuity edges according to visibility and overdrawing the discontinuity edges in an

order resulting from the sorting (as recited in claim 34); steps A and B according to

claim 48; and means for identifying silhouette edges that occur from at least one

viewpoint of the rendered image; means for shading and sorting the discontinuity edges;

and means for overdrawing the discontinuity edges as antialiased lines (as recited in

claim 74).

Conclusion

Any response to this action should be mailed to:

Box

Commissioner of Patents and Trademarks

Washington, DC 20231

or faxed to:

(703) 872-9314, (for technology center 26000 only)

Or:

(703) 308-5359 for informal or draft communications, please label "PROPOSED"

or   DRAFT")

Hand-held delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,

Arlington, VA, 6th floor (receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesner Sajous whose telephone number is (703) 308-5857. The examiner can be reached on Mondays thru Thursdays and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Supervisor, Matthew Bella, can be reached at (703) 308-6829. The fax phone number for this group is (703) 308-6606.

Wesner Sajous

2/12/2004